

PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

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Improved Mounting for a Ventilating Fan

WE, CIE THERMOR SOCIETE ANONYME, a French Body Corporate, of 63 Faubourg St-Jean Orleans (Loiret), France, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:

This invention relates to ventilators or fans mounted in glazed partitions or the like and concerns improvements in or relating to their mounting.

The mounting or installing of fans in glazed partitions often needs the presence of two installers, one on each side of the pane, and it is an object of this invention to obviate this disadvantage.

One known means of dealing with the disadvantage is to mount the fan in an annular rubber strip which has previously been placed at the edge of the ventilating hole and which is formed with a groove adapted to receive and retain a peripheral flange associated with the fan. The annular strip forms the only means for retaining the fan device and is also required to damp fan vibrations, so that the material used for the strip has to meet contradictory requirements of rigidity and flexibility. Also, the retaining strip must stay firmly secured to the device and to the pane, with a consequent reduction in permissible clearance tolerances between the device and the pane and increased difficulties in installing and removing the device.

It is an object of this invention to obviate these disadvantages and enable the device to be installed by a single installer. The invention accordingly relates to a form of mounting permitting considerable clearances between the various items and the use of a gasket capable of having considerable flexibility for damping vibrations

without impairing satisfactory mounting of the fan in the ventilating hole.

According to the invention there is provided a mounting system for a ventilating appliance, e.g. a fan, said system comprising two mounting plates for placing opposite one another on either side of a hole cut in a partition, a peripheral gasket made of a flexible material, e.g. rubber, engageable on the edge of the hole and maintainable thereon and having provision for connection to one of the mounting plates, and fixing means operable from the outer face of the other mounting plate, for securing the mounting plates to each other. The invention also provides a flexible gasket permitting considerable clearances and facilitating installation of the first mounting plate and enabling some of the device to be secured to the partition before the installation of the second mounting plate.

Specific embodiments of the invention will now be described by way of example with reference to the accompanying drawings wherein:

Figure 1 is a view in partial section of a peripheral gasket embodying the invention;

Figure 2 shows the gasket of figure 1 assembled with a fan mounting plate and fitted to the edge bounding a hole in a glass pane;

Figure 3 shows the two mounting plates in the clamping position in either side of the gasket, and

Figures 4, 5 and 6 relate to a variant and are respectively similar to figures 1, 2 and 3.

Referring to Figure 1, a peripheral gasket 1 of circular or some other shape and made of rubber or some similar product has in cross-section a U-shape which is open in the radially outwards

[Price 4s. 6d.]

direction. The base 2 of the U is relatively thin as compared with the two U arms 3, 4. As moulded, the arm 4 curves from the base so that its free end approaches the arm 3. Before installation the space 5 between the free ends of the two arms 3, 4 is preferably less than the thickness of the glass pane in which the fan will subsequently be installed.

That surface 6 of the arm 3 which will subsequently contact a first mounting plate 7 has rubber or similar teats 8 which are uniformly distributed in a circle. The teats 8, which can be moulded in with the gasket 1, have at the base a neck 9 whose outer edge 10 has a diameter greater than matching holes 11 in the plate 7, but the diameter of the teat body 12 is less than the diameter of the holes 11.

As shown in Fig. 2, the teats 8 can be deformed resiliently to penetrate into the holes 11 as far as the base, the neck 9 then tending to resume its initial diameter and stay clamped in its hole so as to maintain the plate 7 in firm engagement with the gasket 1. Actually, the teat body 12 is long enough to be gripped by pliers or the like and pulled through the hole 11. During this step the rubber stretches, the neck 9 diminishes in diameter and the gasket surface 6 readily contacts the plate 7. When the teat body 12 is released, the neck 9 resumes its initial shape to some extent and automatically secures the gasket 1 to the plate 7. The plate 7 has welded-on securing screws 13. The plate 7 together with the gasket 1 is then placed in a ventilation hole in a glass pane 14a, the two arms 3, 4 of the U gasket 1 engaging over the peripheral edge 14 which bounds the latter hole. Since the thickness of the pane 14a is greater than the initial space or gap between the arms 3 and 4, the curved arm 4 tends to straighten, so that resilient forces come into play and help to keep the gasket 1 secured to the pane 14a.

A second mounting plate 15 is then placed on the opposite side of the pane 14a to the first mounting plate 7. The plate 15 is formed with holes 16 for the screws 13, nuts 17 then being screwed on to the screws 13 to keep the two plates 7, 15 secured to one another. When the nuts 17 are tightened, the gasket arm 4 is forced to become fully straightened against the pane 14a, so that the gasket base 2 expands in a radially inwards direction. The thickness of the base 2 should therefore not be excessive, in order to limit the clamping forces required to provide a tight contact between the two arms of the gasket with the two surfaces of the pane. Axial flexibility of the gasket can be increased if the U cross-section is lightened at the outer corners 3a, 4a at the places where the base

merges into the arms.

Actually, the plate 7, fitted with the gasket can be the inner plate which bears the fan. The installer secures the gasket 1 to the plate 7 by forcing the teats 8 into the holes 11, then positions the gasket on the edge of the hole in the pane, so that the fan can hold on its own to the pane inside surface. The installer can then go to the other side of the window to position the plate 15 and deal with the nuts 17. The system can therefore be installed by a single person. The functions of the two mounting plates can be changed round and the gasket and the welded screws 13 can be secured to the plate 15.

The shape of the U gasket shown can deal with various thicknesses of the pane or partition. The teats 8 can be replaced by any equivalent elements for securing the gasket to one of the mounting plates. Similarly, the screws 13 and nuts 17 can be replaced by any assembly elements enabling two mounting plates to be connected to one another in cases where there cannot be simultaneous access to the two outer tightening surfaces.

In the embodiment shown in Figs. 4-6, the resilient gasket 1a has substantially the same shape as in the embodiment just described, but the gasket arm 3 has provision for keeping the mounting plate 7 in position on the gasket 1a, in the form of a lip 18 which is disposed on the periphery of the gasket 1a and connected to the end of the arm 3, co-operating therewith to bound a peripheral gutter 19 engageable by the outer peripheral edge 7a of the plate 7.

Conveniently but not necessarily, the plate 7 can be secured to a part of a fan 20, for instance, a grid, in which case the plate 15 is disposed on the inside. To instal the fan, the gasket 1a is first positioned on the outer edge 7a of the plate 7 by simply separating the two arms 3, 18 of the member 19, whereafter installation proceeds as hereinbefore described; briefly, installation comprises placing the gasket 1a in position on the ventilation hole edge 14, to keep the outer part 20 secured to the pane, then going to the other side of the pane to instal the plate 15 and secure the same to the plate 7 by bolts 13.

The gasket 1a thus devised can be produced from a simple section member which is cut to length and welded. It is therefore very well-suited for fans mounted in circular holes or oval holes and helps to reduce labour and tooling costs considerably. It also has all the advantages of the gasket described with reference to Figs. 1 to 3.

More particularly it has two resilient

layers interposed and clamped between the pane and the two mounting plates and providing effective vibration damping; the fan is secured positively by the clamping of the mounting plates, the annular gasket being required to support the fan only during assembly, and so the gasket can be made relatively soft and flexible material, thus further improving vibration damping; the resilient gasket, comprising two thick arms interconnected by a flexible base, can be fitted to panes and partitions of different thicknesses; the curved shape of one of the two arms of the U provides a gripping action on the pane near the hole edge and enables the gasket to bear the weight of the fan satisfactorily; the joint can readily take up some misdimensioning in the cutting of the installation hole; and because of the relative flexibility of the U shape, the gasket, pre-assembled to one mounting plate and to the fan can readily be installed in the ventilation hole by one single operator on one side of the partition, the second mounting plate being placed thereafter by the same operator on the other side of the partition.

This flexibility also facilitates removal of the device after the mounting plates have been released.

The gutter shape can be limited to some parts of the gasket periphery, the peripheral lip being replaced by retaining feet or strips which are separate from one another.

Of course, the embodiments described and shown are not limitative and can be varied and modified in detail without departure from the scope of the invention as defined by the appended claims.

WHAT WE CLAIM IS:—

1. Mounting system for a ventilating appliance, e.g. a fan, said system comprising two mounting plates for placing opposite one another on either side of a hole cut in a partition, a peripheral gasket made of a flexible material, e.g. rubber, engageable on the edge of the hole and maintainable thereon and having provision for connection to one of the mounting plates, and fixing

means operable from the outer face of the other mounting plate for securing the mounting plates to each other.

2. System as claimed in claim 1, wherein the gasket has in cross-section a U shape which is open in the radially outwards direction and which is adapted to engage over the edge of the hole.

3. System as claimed in claim 2, wherein the base of the U is thinner than the arms of the U.

4. System as claimed in either of claims 2 and 3, wherein the cross-section of the U is cut away at the outer corners where the base merges into the arms.

5. System as claimed in any of claims 2 to 4, wherein before the gasket is installed, at least one of the U arms bends from the base to approach the other arm, the gap between the free ends of the two arms being less than the thickness of the partition.

6. System as claimed in any of the previous claims, wherein the gasket has, on a surface making contact with a mounting plate, one or more teats each having an annular projection adapted to be forcibly engaged in a hole in the mounting plate and to stay clamped in the latter hole.

7. System as claimed in any of claims 1 to 5, wherein the gasket has over at least some of its periphery a gutter-like shape adapted to receive one of the mounting plates.

8. System as claimed in claim 7, wherein the gutter-shaped member is formed by a lip forming an integral part of the gasket and disposed opposite a gasket surface adapted to make contact with a mounting plate.

9. Mounting system for a fan substantially as hereinbefore described with reference to and as illustrated in Figures 1 to 3 or Figures 4 to 6 of the accompanying drawings.

CIE THERMOR SOCIETE ANONYME.

Per:

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1,095,360

COMPLETE SPECIFICATION

2 SHEETS

This drawing is a reproduction of the Original on a reduced scale.

SHEETS 1 & 2

Fig. 4

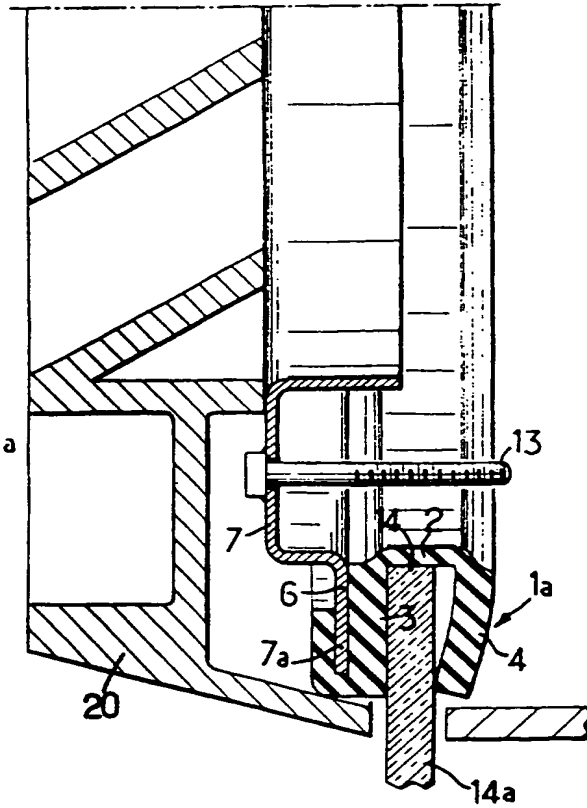
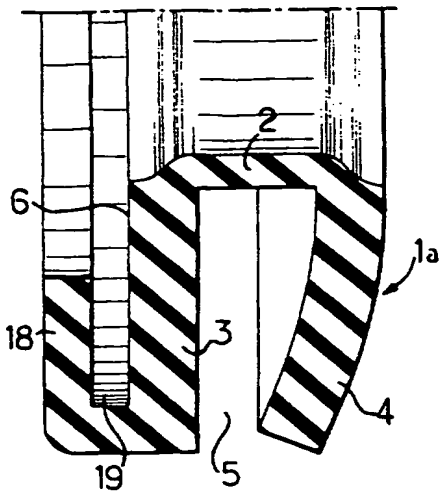


Fig. 6

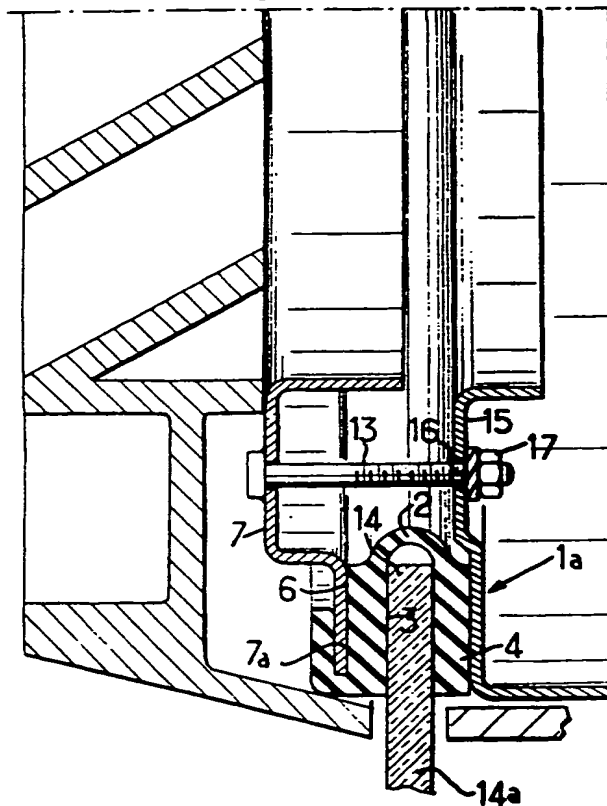
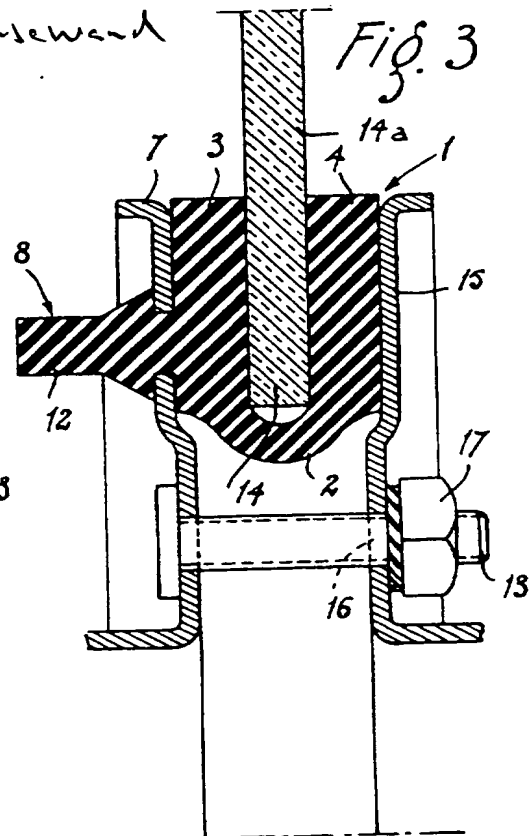
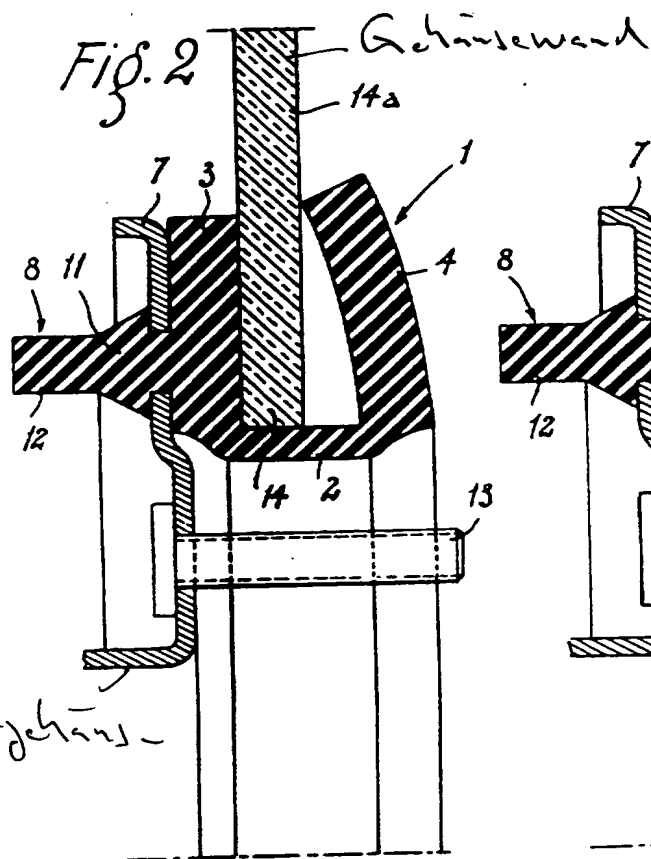
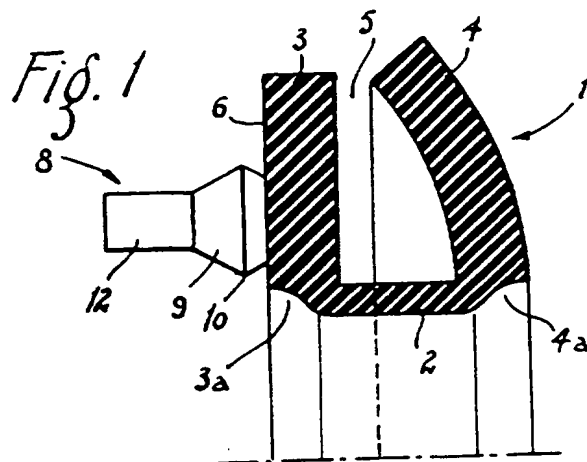
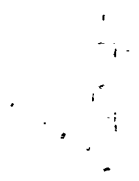


Fig. 5





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